Gold King Mine Release
Sampling and Analysis Plan/Quality Assurance Project Plan

To:	Dan Wall, David Romero
From:	Mark Blanchard
CC:	Joyce Ackerman
TDD#:	0001/1508-04
Date:	9/19/2015
DCN:	W0267.1E.00550
Re:	Addendum 5 to Gold King Mine Release SAP/QAPP – Mine Adit Characterization Sampling

Comments: This is Addendum 5 to the Gold King Mine Release SAP/QAPP. This Addendum provides the following:

1. Written description of tasking for sample collection at the Gold King Mine adit.
2. Table 1 - Testing methods designated for the surface water and sediment samples from the Gold King Mine adit based on discussions held between the EPA and La Plata County officials.
3. Table 2 - Sample container descriptions and preservative types identified by the subcontracted laboratory, Test America, for the sampling.

Purpose and Scope

START will collect surface water and sediment/sludge samples from the Gold King Mine adit. These samples will be collected from as close as is safely accessible to the mine adit opening in order to characterize surface water and sediment sourced by the Gold King Mine.

The anticipated sample location is:

Sample ID	Sample Location Description	Latitude / Longitude
CC06	Gold King 7 Level mine adit. Sample water from flow leaving the adit.	37 53 40.50 N 107 38 18.09 W

If the sample location becomes inaccessible, an alternate sampling location which provides similarly adequate or sufficient data as the original will be identified and sampled based upon the best judgment of the inspector/sampler, if necessary.

The data quality objective (DQO) will be estimation based as opposed to decision based. In other words, the DQO will be presence/absence without any prescribed action.

Sampling and Field QC Procedures

Sampling will include collection of surface water flowing from the adit and sediment/sludge. Sample collection procedures will follow those in ERT SOP 2013 and ERT SOP 2016. In addition, START will collect one 500 ml sample of the dry shotcrete material that will be used as part of the stabilization activities at the site.

START personnel will work with EPA and La Plata County to coordinate the sampling effort. La Plata County personnel will collect split samples to be analyzed by an analytical laboratory directed by La Plata County.

Samples will be analyzed for the parameters listed on Table 1. The methods listed on Table 1 were identified by La Plata County. The analytical laboratory anticipated for analyzing the EPA portion of the split samples, Test America, will be directed to match the methods (or equivalent) utilized by the La Plata County contracted laboratory. Sample container descriptions and preservative types identified by Test America are provided on Table 2.

Table 1 – EPA Testing Method Recommendation for Water and Soil (Sediment) Samples

Water Column		
Parameter	**Test Method**	**Notes**
NO2	SM4500/300.0	
NO3	SM4500/300.0	
TKN	351.2 or 4500 NorgB	
NH3	4500NHCD	
2,3,7,8-TCDD	1613	
PCBs	608/8081 + 608/8082	
Total Chromium	200.5/200.8/200.9	
Chromium-6	7196A or 3500 CRD	
VOCs	524.2	
Cyanide	4500 CNE	
Uranium	200.8	
Radium 226/228	7500 RA B/D	
Gross Alpha	7110B	
Gross Beta	7110B	
Uranium 238	908.0	
Semi-volatile	625	
Sediment		
Parameter	**Test Method**	**Notes**
NO2	SM4500/300.0	
NO3	SM4500/300.0	
NH3	4500NHCD	
Dioxins	1613	
PCBs	608/8081 + 608/8082	
Cyanide	4500 CNE	
VOCs	EPA Method 24	
Uranium	ASTM C1255	
Radium 226/228	Lab Recommendation	Radon-Emanation (for radium 226)
Gross Alpha	Method 9310	
Gross Beta	Method 9310	
Uranium 238	Lab Recommendation	α-Spectrometry
Semi-volitile	8270C	
Thallium	Lab Recommendation	ICP-MS
Thallium nitrate	Lab Recommendation	Atomic absorption spectroscopy
Thallium soluble salts	Lab Recommendation	Atomic absorption spectroscopy

Add Temp, pH, Conductivity and DO

D. Ran 9/21/10

Table 2 – Sample Containers and Preservatives

Bottle Type Description	Preservative	Matrix	Comments
Soil jar 8 oz	None	Solid	PCB/SVOC
Soil jar 8 oz	None	Solid	Cyanide/N/N/NH3/TKN
Soil jar 4 oz	None	Solid	Total Cr/Cr+6
Soil jar 8 oz	None	Solid	Rad226/228/AO1Ur/A01Th/U
Soil jar 2 oz - plastic VOA vial 40 ml- 5 ml DI water/stir bar VOA vial 40 ml – 5 ml MeOH	None DI Water Methanol	Solid	VOCs
Soil jar 8 oz	None	Solid	Dioxins
Soil jar 8 oz	None	Solid	Total Metals/Hg
Plastic 1 liter – Nitric Acid	Nitric acid	Water	Radiological
Amber Glass 1 liter – unpreserved	None	Water	PCB/SVOC
Amber Glass 1 liter – unpreserved	None	Water	Dioxins
Plastic 250 ml – with Nitric Acid	Nitric acid	Water	Total metals
Plastic 250 ml – with Sulfuric Acid	Sulfuric acid	Water	NH3/TKN
Plastic 250 ml – with Sodium Hydroxide	Sodium hydroxide	Water	Cyanide
Plastic 250 ml – unpreserved	None	Water	N/N/Cr+6
VOA vial 40 ml – Hydrochloric acid	Hydrochloric acid	Water	VOCs
VOA vial 40 ml – Hydrochloric acid	Hydrochloric acid	Water	Trip Blank